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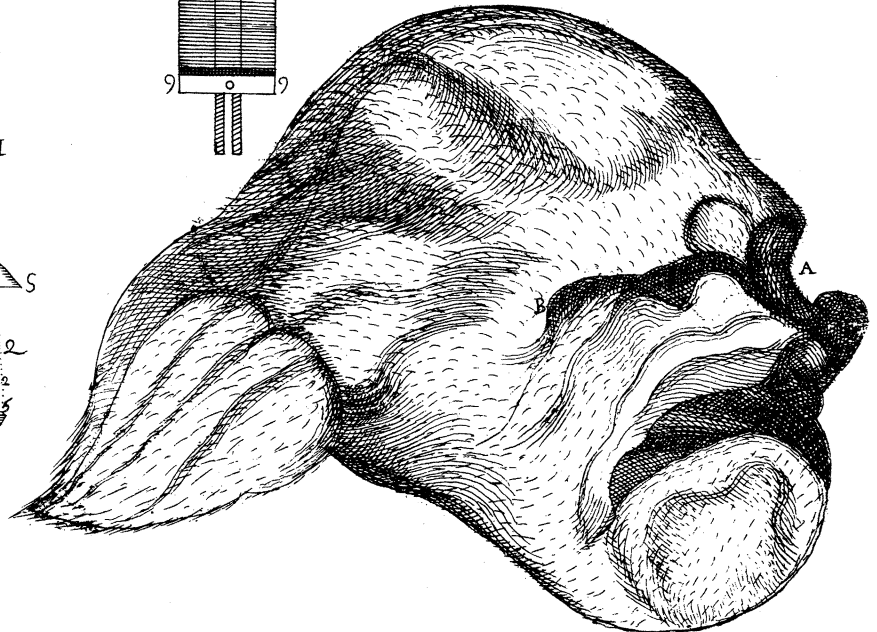
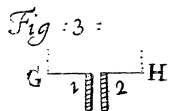
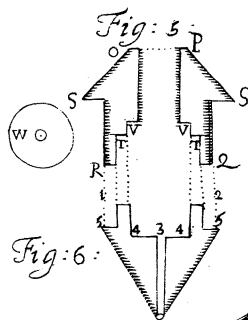
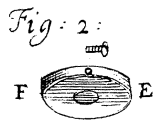
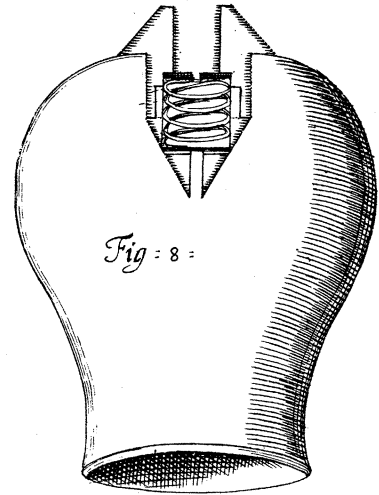
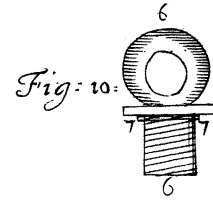
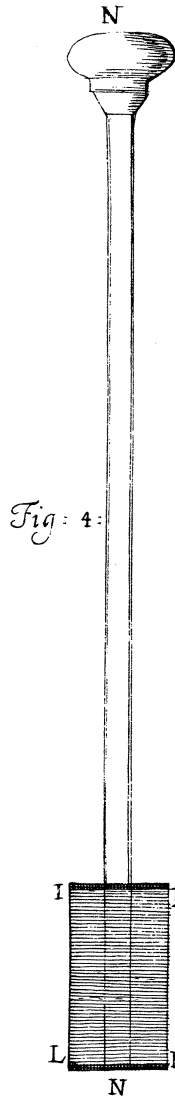
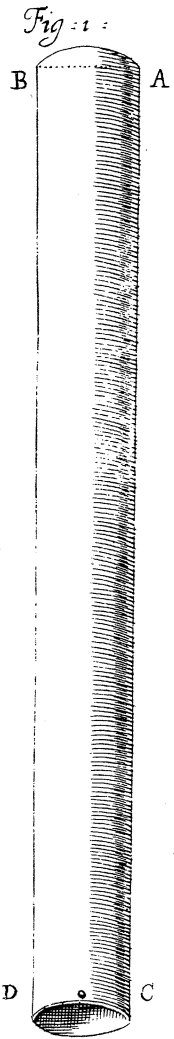
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I. *A Letter from Mr. Thomas Luffkin to Dr. Sloane, concerning the Application of the Pneumatick Engine to Cupping-Glasses.*

**T**Res quatuorve jam effluxêre menses ex quo à Clarissimo omnique laude Dignissimo Doctore Joanne Wallisio literas accepi, quibus exoptat ut descriptionem applicationis Organi Pneumatici ad cucurbitulam (à me fratreque meo excogitatam) tibi communicarem. Quamvis tempus tunc amœnioribus Matheseos Studiis tererem tamen diutius generi humano tam utile inventum ab erudito mundo detinere par non existimavi præcipue cum ejusdem publicatio mea, tam ingenioso viro (quem alterum Archimedem vocare soleo) desiderata erat: itaque morem gerens Inclitissimo viro subsequenter descriptionem compilavi, quam precor ut sereno animi vultu à me accipias, (quia adolescens scribo) locumque ei quendam in eruditissimis actis publicis Philosophicis concedere digneris.

*Organi Pneumatici Descriptio, &c.*

Sit A B (Fig. 1.) cylinder æneus concavus idoneæ crassitudinis cujus diameter sit unius, longitudo verò decem, aut duodecim unciarum, parsque interna exquisitissimè lævigata ut nimirum nulla rimula remaneat, sitque ei propè fundum parvulum foramen O; porrò sit (operculum) E F; (Fig. 2.) fundus G H (Fig. 3.) illud duabus cochleis, hic cemento metallico cylindro nexus, adsit fundo nasus 1, 2. medio perforatus; & ejusdem parti externæ ad modum cochleæ. Fiat virga ferrea N N (Fig. 4.) idoneæ crassitudinis, & longitu-

longitudini cylindri adaptata ; ad ejusdem extremitatem lamina, ænea LM, & propinquiùs duabus uncis cacumini altera IK ; spatiumque intermedium ita filis linteis oleo madefactis replendum est, ut perfectissimè cavitatem cylindri claudat ; adsit tandem manubrium N. Ex his partibus complexum haud dissimile est Syringæ Chirurgorum. Formetur etiã cylinder æneus OPQR (Fig. 5.) magnitudinem figuræ, adæquans duabus alis O SPS, per axem perforatus tam magno foraminè, ut ejusdem pars interna formâ cochleæ feminæ modificata, accuratè cochleam marem nasi recipiat ; porrò augeatur foramen ab R & Q usque ad TT ; tandemque fiat humerus VV & formetur lamina W medio perforata ut ei (humero) conveniat & adhæreat. Porrò formetur conulus rectus per axem perforatus 1, 2, 3. (Fig. 6.) augeaturque foramen ab 1, 2. usque ad 4. 4 ; formeturque humerus 55. ut exquisitissimè conveniat cavitati cylindri TT, & ei strenuè adhæreat ; fiatque tandem elater (Fig. 7.) ex filo æneo helici formâ circa cylindrum, idoneæ viris, & pixidis 4. 4. V. V. diametrum ferè adæquans ; sed pixide aliquanto altius cum sibi relinquatur, habeat ad extremitatem infimam laminam 77 ejusdem magnitudinis, cum pars infima corio molli oleo armato vestienda est ad occludendum orificium canalis. Iterùm fiat ad verticem cucurbitulæ (Fig. 8.) perforatio rotunda, quâ immergatur conus usque ad alas S, S. & rimulæ aut fissuræ repleantur cemento ex resina, terebinthinâ & calce composito. Tandemque fiat operculum 6. 76. 7. (Fig. 10.) ad humerum 77 corio oleo madefacto vestitum, quo aër quamprimum ex vitro haustus erit (si fissuræ ut ut parvulæ valvulâ forte remanebunt) excludi potest. Hucusque in ejusdem descriptione tempus trivi, nunc non de usu & ad morbosos applicatione,, quia Medicorum & Chirurgorum est, sed usus ratione quatenus ad Philo-

Philosophiam (h. e. Φαινόμενα naturæ explicationem) spectat, pauca Subnectam. Cum pollex strenuè applicatur ad foramen, & lamina, 99 (Fig. 9.) manubrio attollitur ad 10. 10. at quia aër antea tantum spatium 9.0.9. replevit, nunc ita rarefactus aut expansus est ut spatium 9.9. 10.10. (hoc est tricenties majus) occupat, quapropter aëris vitro inclusi elasticitas, elasticitates elateris & aëris cylindro contenti superans, sursum obtrudetur lamina, aut valvula, quæ aperta remanebit donec tanta quantitas aëris petat cylindrum ex vitro, ut complementi aëris vitro elasticitas fiat equalis elasticitatibus elateris & aëris nunc cylindro contenti; at aperto foramine O aëris externi pressurâ potenter occluditur valvulâ: Cæteri paribus, & tribus quatuorve suctionibus plus minusve  $\frac{222}{1000}$  aëris (secundum elateris potestatem; & rationem quam habet capacitas cylindri ad capacitatem cucurbitulæ) exhaustæ erunt: & si elasticitas aëris eodem spatium sit ut quantitas, resistentia aut pressura sub vitro erit ad pressuram supra partes circumjacentes ut unitas ad mille, quia antequam aër exhaustus erat vitro, resistentia aut pressura sub vitro eadem fuit cum illa supra partes extra vitrum. Notatu dignum existimo, ut quanto major erit cylinder eodem elatere, tanto major aëris quantitas exhausta erit vitro; quia aër 9.0.9. in majus spatium extenditur, & consequenter minorem habet elasticitatem, quapropter majorem habebit rationem elasticitas aëris in vitro ad elasticitatem aëris in cylindro & elatere contenti itaque major aëris quantitas vitro extrudetur, &c.

Colcestriz  
Octob. 16. 1699.